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| FISH & RICHARDSON P.C. P.O BOX 1022 MINNEAPOLIS, MN 55440-1022 | | | EXAMINER HOM, SHICK C | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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| | | | |
|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/734,440 | Applicant(s) SAMPATH ET AL. | |
| | Examiner SHICK C. HOM | Art Unit 2471 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 January 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-57, 59-76 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 14-22, 32-40, 50-57 and 59-76 is/are rejected.
- 7) ☒ Claim(s) 5-13, 23-31, 41-49 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 1/27/2010 have been fully considered but they are not persuasive.

In pages 17-18 of the Remarks, applicant argued that the computer-readable medium of claims 55-57, 59-72, and 76 being distinct from a signal is not persuasive, because since the specification does not have any limiting disclosure on what the computer-readable medium is, it is well-known in the art that computer-readable medium can be interpret as encompassing transmission medium, i.e. signal transmitted wirelessly or by wire, and therefore not statutory.

In pages 18-19, applicant argued that Pepin et al. do not teach or suggest determining a signal quality value from received packets transmitted at a first data transmission rate is not persuasive because the abstract and paragraph 0012 recite the quality of service probing module probes an end-to-end network path of the continuous voice stream transmission to obtain quality of service parameter and determining the constraint associated with the continuous voice stream transmission to adjust the source code bit rate and the channel code bit rate as a function of the quality of service parameter

Art Unit: 2471

and the constraint to obtain a maximum value of perceived user performance during the continuous voice stream transmission clearly reads on determining a signal quality value from received packets transmitted at a first data transmission rate as claimed. In pages 20-21, applicant argued that Pepin et al. do not teach or suggest determining a packet loss indicator value from transmitted packets transmitted at a second different data transmission rate is not persuasive because paragraph 0069 recites determining packet loss at the maximum transmission rate that can be sustained by the network path such that congestion does not build up clearly reads on determining a packet loss indicator value from transmitted packets transmitted at a second different data transmission rate, i.e. the maximum transmission rate that can be sustained by the network path such that congestion does not build up which is clearly different from the recited continuous voice stream transmission rate or the first data transmission rate; further paragraph 0069 which recite optimally allocating source and channel bits such that the transmission rate is less than the available bandwidth and the number of channel bits is adequate to result in desired speech quality given the packet loss rate clearly reads on selecting and transmitting packets at the third different data transmission rate as claimed.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 55-57, 59-72 and 76 are rejected under 35 U.S.C. § 101 because it is directed to a computer-readable medium having instructions stored thereon and since the specification does not have any limiting disclosure on what the computer-readable medium is; based upon the state of the art, a computer-readable medium includes not only semiconductor memory, RAM, ROM, CD, floppy-disk, and hard drives but also can be interpreted to encompass transmission medium or signals transmitted to and readable by a computer wireless or by wire, therefore the claimed computer-readable medium having instructions stored thereon can be interpreted as a computer program, i.e. instructions, stored and transmitted over encoded signals; however claims directed to a transmitted "signal" nor to a "computer program" is a process, machine, manufacture, or composition of matter and thus non-statutory.

Claim Rejections - 35 USC § 102

Art Unit: 2471

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 19, 22, 37, 40, and 55 are rejected under 35 U.S.C. 102(e) as being anticipated by Pepin et al. (2004/0160979).

Regarding claims 1, 19, 37, and 55:

Pepin et al. disclose a method performed by at least one device of a communication system, the method comprising:

determining a signal quality value from received packets transmitted at a first data rate (paragraph 0012 recite bit rates being adjusted during operation to achieve a maximum user perceived performance whereby a quality of service probe is used to determine the end-to-end network path of the voice stream transmission to obtain a quality of service parameter which is used to determine the constraint that is associated with the

Art Unit: 2471

voice stream transmission in order to adjust the bit rate clearly anticipate packets at a first data rate);

determining a packet loss indicator value from transmitted packets transmitted at a second data rate; and selecting a third different data rate in response to the signal quality value determined from the received packets transmitted at the first data rate and the packet loss indicator value determined from the transmitted packets transmitted at the second data rate, wherein the selecting includes selecting the third different data rate from a plurality of available data rates, and each of the plurality of available data rates is different from the first data rate and the second data rate; and transmitting packets at the third different data rate (paragraph 0069 recite a bit rate adaptation module selecting the bit rate based on given information whereby the given information being the available bandwidth (i.e., the maximum transmission rate that can be sustained by the network path such that congestion does not build up), and packet loss, the bit rate adaptation module uses an algorithm to find the optimum rate, i.e. the third different data rate, that is adequate to result in desired speech quality given the packet loss rate; i.e. the second data rate).

Regarding claims 22 and 40:

Pepin et al. disclose a table including the plurality of available data rates, each available data rate associated with a nominal signal quality value (paragraphs 0076-0080 recite the different rates possible and the table lookup operation for determining the quality values).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35

Art Unit: 2471

U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 2-3, 16-18, 20-22, 34-36, 38-39, 52-54, 56-57, and 70-72 rejected under 35 U.S.C. 103(a) as being unpatentable over Pepin et al. (2004/0160979) in view of Mahany et al. (5,483,676).

For claims 2-3, 16-18, 20-22, 34-36, 38-39, 52-54, 56-57, and 70-72, Pepin et al. disclose the method and apparatus described in paragraph 6 of the office action, Pepin et al. disclose all the subject matter of the claimed invention with the exception of the limitations of claims 2, 20, 38, and 56: wherein the received signal quality value is selected from an RSSI (Received Signal Strength Indicator) value, an SNR (signal to noise ratio) value, an SINR (signal to interference noise ratio) value, and a SQM (signal quality measure) value, the SQM value comprising a mean of the SNRs across all of a plurality of tones; the limitations of claims 3, 21, 39, and 57: wherein the data loss indicator value is selected from a retry counter value, a bit-error update value, a data error update value, a symbol error update value, and a CRC (Cyclic Redundancy Check) indicator value; the limitations of claims 16, 18, 34, 36, 52,

Art Unit: 2471

54, 70, and 72: decreasing the selected data rate in response to the packet loss indicator value increasing; and selecting a fourth data rate value directly from the packet loss indicator value in response to the received signal quality value falling below a minimum signal quality value; and the limitations of claims 17, 22, 35, 53, and 71: wherein said decreasing comprises decreasing the selected data rate in response to data rate values in a table indexed by available data rates and packet loss indicator values.

Mahany et al. from the same or similar fields of endeavor teach that it is known to provide:

Regarding claims 2, 20, 38, and 56: wherein the received signal quality value is selected from an RSSI (Received Signal Strength Indicator) value, an SNR (signal to noise ratio) value, an SINR (signal to interference noise ratio) value, and a SQM (signal quality measure) value, the SQM value comprising a mean of the SNRs across all of a plurality of tones (col. 21 lines 1-7 recite signal quality being based on the received signal strength indicator);

Regarding claims 3, 21, 39, and 57: wherein the data loss indicator value is selected from a retry counter value, a bit-error update value, a data error update value, a symbol error update value, and a CRC (Cyclic Redundancy Check) indicator

Art Unit: 2471

value (col. 17 lines 5-13 recite the comparing the total number of error against a threshold value to make data rate decision; col. 19 line 7-17 recite using bit error rate BER; and col. 28 line 62 to col. 29 line 5 recite the use of Cyclic Redundancy Check);

Regarding claims 16, 18, 34, 36, 52, 54, 70, and 72: decreasing the selected data rate in response to the packet loss indicator value increasing as in claims 16, 34, 52, 70; and selecting a fourth data rate value directly from the packet loss indicator value in response to the received signal quality value falling below a minimum signal quality value as in claims 18, 36, 54, 72 (col. 17 lines 5-13 recite comparing number of errors against threshold for selecting the 9600 baud operation and if error is above this level the 4800 baud operation is used; and col. 2 lines 35-57 recite switching between two or more data rates clearly anticipate the fourth data rate value); and

Regarding claims 17, 22, 35, 53, and 71: wherein said decreasing comprises decreasing the selected data rate in response to data rate values in a table indexed by available data rates and packet loss indicator values as in claims 17, 35, 53, 71 (col. 25 lines 59-67 recite the use of a stored table for adjusting the rate and col. 15 lines 11-21 recite the data rate

Art Unit: 2471

being programmable under software control clearly reads on the use of a table as claimed).

Thus, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to provide wherein the received signal quality value is selected from an RSSI (Received Signal Strength Indicator) value, an SNR (signal to noise ratio) value, an SINR (signal to interference noise ratio) value, and a SQM (signal quality measure) value, the SQM value comprising a mean of the SNRs across all of a plurality of tones; wherein the data loss indicator value is selected from a retry counter value, a bit-error update value, a data error update value, a symbol error update value, and a CRC (Cyclic Redundancy Check) indicator value; decreasing the selected data rate in response to the packet loss indicator value increasing; and selecting a fourth data rate value directly from the packet loss indicator value in response to the received signal quality value falling below a minimum signal quality value; and decreasing the selected data rate in response to data rate values in a table indexed by available data rates and packet loss indicator values as taught by Mahany et al. in the communications method and apparatus of Pepin et al.

The received signal quality value being selected from an RSSI (Received Signal Strength Indicator) value, an SNR (signal

Art Unit: 2471

to noise ratio) value, an SINR (signal to interference noise ratio) value, and a SQM (signal quality measure) value, the SQM value comprising a mean of the SNRs across all of a plurality of tones; wherein the data loss indicator value is selected from a retry counter value, a bit-error update value, a data error update value, a symbol error update value, and a CRC (Cyclic Redundancy Check) indicator value; decreasing the selected data rate in response to the packet loss indicator value increasing; and selecting a fourth data rate value directly from the packet loss indicator value in response to the received signal quality value falling below a minimum signal quality value; and decreasing the selected data rate in response to data rate values in a table indexed by available data rates and packet loss indicator values can be implemented by providing theses steps of Mahany et al. in the logic of selecting the data rate of Pepin et al. The motivation for providing the logic and steps of the received signal quality value being selected from an RSSI (Received Signal Strength Indicator) value, an SNR (signal to noise ratio) value, an SINR (signal to interference noise ratio) value, and a SQM (signal quality measure) value, the SQM value comprising a mean of the SNRs across all of a plurality of tones; wherein the data loss indicator value is selected from a retry counter value, a bit-error update value, a

Art Unit: 2471

data error update value, a symbol error update value, and a CRC (Cyclic Redundancy Check) indicator value; decreasing the selected data rate in response to the packet loss indicator value increasing; and selecting a fourth data rate value directly from the packet loss indicator value in response to the received signal quality value falling below a minimum signal quality value; and decreasing the selected data rate in response to data rate values in a table indexed by available data rates and packet loss indicator values as taught by Mahany et al. in the communication method and apparatus of selecting the data rate of Pepin et al. being that they provide more efficiency for the design of the system since the system uses known technique of defining signal quality and criterion of adjusting the transmitting data rate to obtain the optimum rate.

8. Claims 14-15, 32-33, 50-51, 68-69, and 73-76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pepin et al. (2004/0160979) in view of Yavuz et al. (7,075,913).

For claims 14-15, 32-33, 50-51, 68-69, and 73-76, Pepin et al. disclose the apparatus, computer-readable medium, and method described in paragraph 6 of this office action.

Pepin et al. disclose all the subject matter of the claimed invention with the exception of the step of increasing a transmit power for transmitting packets in response to the selected data rate falling below a first data rate; and decreasing the transmit power in response to the selected data rate exceeding a second data rate as in claims 14, 32, 50, 68; wherein the second data rate is greater than the first data rate as in claims 15, 33, 51, 69; and wherein the transmitted packets and received packets comply with one of the IEEE 802.11 family of specifications as in claims 73-76.

Yavuz et al. from the same or similar fields of endeavor teach that it is known to provide the step of increasing a transmit power for transmitting packets in response to the selected data rate falling below a first data rate; and decreasing the transmit power in response to the selected data rate exceeding a second data rate; wherein the second data rate is greater than the first data rate (col. 2 lines 5-19 recite the relationship between power and rate, i.e. higher transmit power is needed to support higher rate); and wherein the transmitted packets and received packets comply with one of the IEEE 802.11 family of specifications (col. 1 line 62 to col. 2 line 4 recite the use of a plurality of operating standards

Art Unit: 2471

clearly anticipate one of the IEEE 802.11 family of specifications as claimed).

Thus, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to provide the steps of increasing a transmit power for transmitting packets in response to the selected data rate falling below a first data rate; and decreasing the transmit power in response to the selected data rate exceeding a second data rate; wherein the second data rate is greater than the first data rate; and wherein the transmitted packets and received packets comply with one of the IEEE 802.11 family of specifications as taught by Yavuz et al. in the communications network of Pepin et al.

The step of increasing a transmit power for transmitting packets in response to the selected data rate falling below a first data rate; and decreasing the transmit power in response to the selected data rate exceeding a second data rate; wherein the second data rate is greater than the first data rate; and wherein the transmitted packets and received packets comply with one of the IEEE 802.11 family of specifications can be implemented by connecting the packet data network including the step of increasing a transmit power for transmitting packets in response to the selected data rate falling below a first data

Art Unit: 2471

rate; and decreasing the transmit power in response to the selected data rate exceeding a second data rate; wherein the second data rate is greater than the first data rate; and wherein the transmitted packets and received packets comply with one of the IEEE 802.11 family of specifications of Yavuz et al. to the network of Pepin et al.

The motivation for providing the step of increasing a transmit power for transmitting packets in response to the selected data rate falling below a first data rate; and decreasing the transmit power in response to the selected data rate exceeding a second data rate; wherein the second data rate is greater than the first data rate; and wherein the transmitted packets and received packets comply with one of the IEEE 802.11 family of specifications as taught by Yavuz et al. in the mobile communication system and method of Pepin et al. being that it provides more desirable added feature of increasing and decreasing power in response to data rate and more efficiency for the system since the system uses a standard family of specifications for transmitting and receiving packets.

Allowable Subject Matter

9. Claims 5-13, 23-31, and 41-49 would be allowable if rewritten to include all of the limitations of the base claim and any intervening claims.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SHICK C. HOM whose telephone number is (571)272-3173. The examiner can normally be reached on Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pham Chi can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Chi H Pham/
Supervisory Patent
Examiner, Art Unit 2471

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